

JP 2-142,568

Code: 5000-78242

JAPANESE PATENT OFFICE  
PATENT JOURNAL (A)  
KOKAI PATENT APPLICATION NO. HEI 2[1990]-142568

Int. Cl. <sup>5</sup> :	A 61 L	9/04
	A 41 D	31/00
	A 47 G	9/02
	A 61 K	7/46
	D 06 M	23/04
	D 06 M	21/00
		21/04
Sequence Nos. for Office Use:	7305-4C	
	6704-3B	
	8206-3B	
	7306-4C	
	7306-4C	
	8521-4L	
	8521-4L	
Filing No.:	Sho 63[1988]-295854	
Filing Date:	November 22, 1988	
Publication Date:	May 31, 1990	
No. of Claims:	2 (Total of 3 pages)	
Examination Request:	Not filed	

FORMATION PROCESS FOR A FRAGRANCE RELEASING PRODUCT AND THE  
FRAGRANCE RELEASING MATERIAL USED IN THE PROCESS

Inventor:	Masatoshi Ishikawa 1625 Ooaza Tado, Tado-machi, Kuwana-gun, Mie-ken
Applicants:	Ishikawa Industry Limited, 1625 Ooaza Tado, Tado-machi, Kuwana-gun, Mie-ken

Masatoshi Ishikawa  
1625 Ooaza Tado, Tado-machi,  
Kuwana-gun, Mie-ken

Agent:

Sakami Oka, patent attorney

[There are no amendments to this patent.]

### Claims

1. A formation process for a fragrance releasing product characterized by using a group of small particles with a foaming resin attached, in which the group of small particles of a crystal material, such as a ceramic powder, for example, with spaces among the crystals and into which a necessary fragrance is immersed and attached, is mixed into a continuous bubble foaming resin and buried densely, providing a product with an arbitrary printing using said fragrance releasing material as the printing material, and then forming a fragrance releasing part by foam processing said foaming resin.

2. A fragrance releasing material used in the formation process for the fragrance releasing product described in Claim 1 which has a group of small particles with a foaming resin attached, in which the group of small particles of a crystal material, such as a ceramic powder, for example, which has spaces among the crystals and into which a necessary fragrance is immersed and attached, is mixed into a continuous bubble foaming resin and buried densely, as the main component.

### Detailed explanation of the invention

#### Industrial application field

This invention concerns a formation process for fragrance releasing fibrous fabrics and fragrance releasing synthetic resin products, and various kinds of fragrance products, such as fragrance releasing glass and wood products, for example, and the fragrance releasing material that is used in that formation process.

#### Prior art

Recently, "comforters," "towel-blankets," and "sheets" as bedding products that have flower and wood fragrances, in which flower and wood fragrances are wrapped into micro-capsules and these micro-capsules are woven into fabrics, have been disclosed as fragrance products that release flower and wood fragrances.

### Problems to be solved in this invention

The above conventional fragrance releasing products have a structure, in which the micro-capsules that wrap the fragrance become the source of the fragrance release, the skin of that micro-capsule is broken by stress through friction and bending when a sheet, for example, is used, and the fragrance that is contained inside is released. Therefore, the fragrance releasing performance is diminished since the release of the fragrance from individual micro-capsules occurs all at once and does not last long, and a tendency exists for the fragrance release to be excessive or inadequate according to the conditions of use, for example. Furthermore, the micro-capsules fall from the products according to the conditions of use and through washing, and the fragrance release from the aforementioned bedding products, for example, are considered to be lost after 4-5 washes due to fragrance release occurring all at once or due to micro-capsule loss.

The purpose of this invention is to offer a formation process for a fragrance releasing product, in which the problems in the prior art are solved, and a fragrance releasing material that is used in that process.

### Means to solve the problems

This invention, which solves the technological problems above, has a structure as in the abstract below, which consists of:

The first invention, which is “the formation process for a fragrance releasing product characterized by using a group of small particles with a foaming resin attached, in which the group of small particles of a crystal material, such as a ceramic powder, for example, which has spaces among the crystals and into which a necessary fragrance is immersed and attached, is mixed into a continuous bubble foaming resin and buried densely, providing a product with an arbitrary printing using said fragrance releasing material as the printing material, and then forming a fragrance releasing part by foam processing said foaming resin,”

and the second invention, which is “the fragrance releasing material characterized by consisting of a group of small particles with a foaming resin attached, in which the group of small particles of a crystal material, such as a ceramic powder, for example, which has spaces among the crystals and into which a necessary fragrance is immersed and attached, is mixed into a continuous bubble foaming resin and buried densely, and the use of this in the formation process in the aforementioned first invention.”

More precisely, the fragrance releasing material in the aforementioned second invention has small particles of a small size crystal material, such as 5-28  $\mu\text{m}$ , for example, having gaps among the crystals, such as silica powder and alumina powder as ceramic materials, activated carbon powder, and silica powder, for example, as the core. The group of these small particles is

soaked in a fragrance, for example, then agitated (about 1 h) so that the necessary fragrance enters and is immersed in the respective gaps among the crystals of the group of small particles, and small particles with the fragrance attached on the surface are formed. Then, that group of small particles with the fragrance attached is placed into a continuous bubble foaming resin solution, such as urethane, for example, agitated, and structured as a group of small particles with a liquid foaming resin attached, which is densely mixed into said foaming resin.

Then, the formation of the fragrance releasing product in the aforementioned first invention is made in the following manner using the fragrance releasing material above. More precisely, as its characteristic, the aforementioned liquid fragrance releasing material is used as printing material, an arbitrary pattern, graph, or letter is drawn at an arbitrary location of an arbitrary product including paper products, woven products, knitted products, non-woven fabrics, and products made of metals, ceramics, and glass, for example, that are to receive the fragrance releasing process, and then printed by an ordinary process. That printed area is afterwards heated, the resin embedded with the group of small particles of said fragrance releasing material, which is printed, is foam processed, and a fragrance releasing part on the surface of the product is formed from which the fragrance, which is immersed and attached to the group of small particles, is slowly released into the ambient air by using the continuous bubbles, which were formed by foaming, as the passage.

As explained above, the essence of the formation process for the fragrance releasing product in this invention is: using “the group of small particles with a fragrance attached wrapped in a continuous bubble foaming resin” as the printing material; and giving an arbitrary printing treatment to a product that is to receive the fragrance releasing process, such as a fabric, for example. Therefore, products to be processed that become subject to the fragrance releasing process include all products that are printable as indicated in the aforementioned examples. Then, shapes of products that are print processed may include various three-dimensional shapes in addition to fabric and film shapes. Furthermore, printing contents that can be provided on surfaces can be chosen freely including the entire surface printing, for example, in addition to the aforementioned letters and graphs. One can also freely select an entire surface fragrance release, partial fragrance release, pattern fragrance release, and letter fragrance release according to the characteristics of respective products. One can furthermore freely form a fragrance releasing part in color printing by providing the aforementioned continuous bubble foaming resin an arbitrary color.

#### Operation of the invention

The fragrance releasing material in this invention having the aforementioned structure has a structure, in which a fragrance is immersed and attached to small particles of a crystal material

having gaps among the crystals, such as ceramic powder, for example, and it is furthermore wrapped from the top by a continuous bubble foaming resin which forms a layer. Printing is provided to surfaces of various products by using the fragrance releasing material as the printing material, and the fragrance releasing part of the product is formed by final foam processing of the foaming resin, which has wrapped said small particles. Therefore, there is specific action, in which the fragrance of the group of small particles is gradually released using the continuous foam at the outer layer as the passage, and necessary fragrance is slowly diffused continuously from the surface of the product. Then, the releasing operation is a self-action based on the self-structure, which is not an outside-promoted action that relies on frictional force when used as in the aforementioned conventional technology. Therefore, the fragrance release does not occur all at once and does not reach completion early, and a stable fragrance release can last for a long time without creating an excessive or insufficient uniformity in the fragrance release.

Furthermore, it uses a process in which the aforementioned fragrance releasing material is printed onto a target product. Therefore, loss of material through friction and washing during use is reduced. Moreover, it has the advantage of adjustment to a desirable fragrance releasing performance that matches the characteristic of the product through adjustment of the level of the resin foam.

#### Application example

An application example will be provided and explained below. Referring to Figure 1, which shows an application example of this invention, the diagram shows an application example, in which a fibrous fabric used for underwear or sheets, for example, is formed as a fragrance releasing fabric, in which fragrance releasing material (2), in which small particles (3) of a ceramic material powder (alumina powder), into which a necessary fragrance is immersed and attached, are densely embedded into a continuous bubble foaming resin (4), [the fragrance releasing material] is arranged over a fabric (1) by printing in round convex spots, the foaming resin (4) is foamed and the fragrance releasing fabric is formed.

Underwear using the fragrance releasing fabric in this application example slowly releases the fragrance while it is being worn, and the fragrance releasing part in round convex spots has a foam layer of continuous bubbles. Therefore, it has a soft feel to the skin, and a fresh wear feeling, which exceeds the feel of conventional underwear, can be obtained, a stable fragrance releasing action also lasts for a long time, and the feel of the fragrance is maintained even after 20 washes, so an excellent fragrance releasing performance was confirmed.

### Effect of the invention

As explained above, the formation process for the fragrance releasing product in this invention and the fragrance releasing material used for it have an excellent fragrance releasing performance, in which a stable and satisfactory fragrance release is maintained. Moreover, it has excellent practicability and can be used with various products in a variety of shapes and materials, and it has the effect of widely improving the value of the products in general and promoting the development of new fragrance releasing products, and attempts to improve the convenience for product users, for example.

### Brief description of the figures

Figure 1: shows a fragrance releasing fabric for underwear formed in an application example of this invention, (A) is its front view, and (B) is a partial cross-sectional enlargement of (A).

1: Fabric, 2: fragrance releasing material, 3: small particles, and 4: foaming resin.

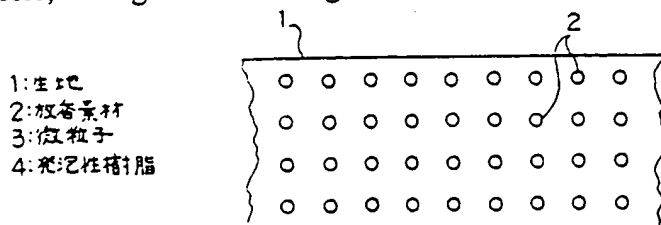


Figure 1(A)

Key: 1 Fabric  
2 Fragrance releasing material  
3 Small particle  
4 Foaming resin

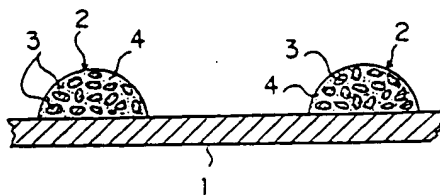


Figure 1(B)